



August 05, 2020

Jenny Raitt, Director, Department of Planning and Community Development

Arlington Town Counsel
50 Pleasant Street
Arlington, MA 02476

**Re: Thorndike Place - Arlington, MA
Comprehensive Permit Civil / Site Peer Review**

Dear Ms. Raitt:

BETA Group, Inc. (BETA) has completed its peer review of the environmental, civil and stormwater related elements of the site plans and supporting engineering documents for the above-referenced project, based on the following materials:

- *Thorndike Place Comprehensive Permit* stamped plan set, Dorothy Road, Arlington MA, 12 sheets, dated March 13, 2020 prepared by BCS Group;
- *Oak Tree Development, Thorndike Place* plan set, Dorothy Road, Arlington MA, dated February 24, 2015 prepared by Borrego Solar;
- *Notice of Eligibility for 40B Site Eligibility Letter*, “Thorndike Place” off Dorothy Road, (Mugar Site) Arlington, MA, peer review letter prepared by Nover-Armstrong Associates, dated August 10, 2015;
- Memorandum, *Completeness Review of Comprehensive Permit Application*, prepared by Jonathan Witten, Esq., KP Law, acting as special municipal counsel, dated September 26, 2016, updated July 7, 2020;
- *Response to Completeness Review Memo*, Thorndike Place, Dorothy Road, Arlington MA, dated March 18, 2020 prepared by Smolak & Vaughn LLP;
- Comment letter, Thorndike Place, prepared by Arlington Land Trust, dated July 3, 2020;
- Comment letter, Thorndike Place, prepared by Arlington Redevelopment Board, dated July 3, 2020;
- Comment email, Thorndike Place, prepared by Arlington Transportation Advisory Committee (TAC), dated June 18, 2020;
- Comment letter, Thorndike Place, prepared by Arlington Select Board, dated July 7, 2020;
- Comment letter, Thorndike Place, prepared by Arlington resident Cori Beckwith, dated July 7, 2020;
- Comment letter, Thorndike Place, prepared by Arlington Open Space Committee, dated July 6, 2020;
- Comment letter, Thorndike Place, prepared by Arlington Inspectional Services Dept, dated July 3, 2020;
- FEMA Flood Insurance Study, Middlesex County, Revised June 6, 2016;
- Town of Arlington Zoning Bylaw with amendments through April 2016;
- Town of Arlington Wetland Protection Bylaw, Article 8 and Regulations for Wetland Protection, June 4, 2015;
- MassDEP Stormwater Management Standards (SMS);

- Massachusetts GIS mapping tool OLIVER (http://maps.massgis.state.ma.us/map_ol/oliver.php), website visited July 20, 2020;
- USFWS Information for Planning and Consultation (IPaC), online tool (<https://ecos.fws.gov/ipac/>), website visited July 20, 2020.

The following are our comments on the plans and supporting documents.

General

BETA Group was retained to perform a civil / site / stormwater design peer review of the Comprehensive Permit application for the proposed Thorndike Place 40B housing project. Part of this review includes an overall analysis of the existing site to confirm its suitability for the proposed project. At this preliminary design phase, it is understood that the proposed site utilities such as the stormwater management system have not been fully designed and are shown graphically with some initial calculations generated to use for general sizing purposes. An in-depth review of hydrologic models for the project site would be undertaken later when the site design is at a more advanced phase.

Existing Conditions

The project site includes multiple parcels that total approximately 17.7-acres of land located between Dorothy Road, Burch Street, and the Concord Turnpike (Route 2) in Arlington, Mass. Dorothy Road and Burch Street are both residential neighborhood streets featuring predominantly single-family houses. The site is essentially undeveloped woodland area that has been a location for the dumping of earthen fill and assorted debris throughout the years. Site topography generally slopes southerly towards the Concord Turnpike.

A review of the current FEMA Flood Insurance Study for Middlesex County indicates that a majority of the site is located within the mapped 100-year flood plain Zone AE (Elev. 6.8) and that almost all of the site is located within the 500-year flood plain Zone X.

Proposed Project

The proposed project includes the construction of a 207-unit residential apartment building and 12 townhome style building units along with associated access driveways, parking areas, utilities, infrastructure, and stormwater management system.

2015 Comprehensive Permit Application

A Comprehensive Permit Application was originally submitted for the proposed Thorndike Place project by the Applicant in 2015. Nover-Armstrong Associates (N-A) conducted a detailed peer review of the application package and issued a peer review letter dated August 10, 2015. Their review letter contained eighteen (18) comments regarding the site plans and application package. The following comments from the 2015 N-A review letter related to civil/site design remain applicable:

2. *The Application does not comply with the Required Attachments Relating to Section 3.0 Preliminary Site Layout Plan(s).*

- a. *Proposed site grading (2' contours) are not shown.*
- b. *Proposed utilities (stormwater Best Management Practices and conveyances) are not shown.*

Recommendation: The proposed Grading and Drainage plans now show spot grades throughout the proposed parking and access drive areas with 1-ft contours shown in the flood-plain compensatory storage areas and linear water quality basins along the northerly site perimeter.

No proposed grading is shown along the westerly limits of the parking/driveway area to match into existing conditions.

Proposed sewer, water and stormwater utilities are shown schematically on the Utility Plan sheets. No proposed gas, electrical or tele/com services are currently shown.

15. *Eight boring locations are shown on the Existing Conditions Plan C-1 with surface elevations and depths to groundwater noted. Dated and detailed boring logs are not provided on the plans or in the Application making it difficult to evaluate whether the depth of the groundwater observed represents the seasonal high groundwater elevation. The depth to groundwater is presumed to have been measured the day the borings were advanced and may not represent the actual high ground water elevation.*

16. *Excavated test holes witnessed by a MassDEP Soil Evaluator are necessary to definitively identify the Site's soil types and whether the conceptual project design is generally appropriate for the Site. Boring logs document encountered type soils on the Project Site which help evaluate what types of BMPs would be feasible for the stormwater management system.*

Recommendation: The results of any soil borings or test pits done on the project site should be submitted for review. Determination of the seasonal high groundwater elevation is necessary to confirm that the proposed stormwater BMPs are suitable as shown.

2020 Comprehensive Permit Application

The following are new comments based on our review of the revised Comprehensive Permit submittal from March 2020:

SITE PLANS

1. There is no emergency access drive shown around the rear of the main site building.

Recommendation: The Applicant must coordinate with the Arlington Fire Department to determine if an emergency access drive is required around the rear of the main site building.

2. The northerly corner of the proposed parking lot on the west side of the project site adjacent to #29 Littlejohn Street is located approximately 7-feet from the property line. The proposed spot grade at this corner is elev. 12, which is 3+ feet higher than existing grade.

Recommendation: The Applicant should provide proposed grading around the north side of the parking lot to demonstrate that surface runoff from this area will not be directed onto the property at #29 Littlejohn Street.

3. Areas of pervious pavement are proposed in the parking lots on the northeast side of the main site building and on the west end of the project.

Recommendation: The Applicant should provide a detail of the pervious pavement section for review to evaluate its functionality.

4. Areas for trash collection and snow storage are not identified on the site plan.

Recommendation: The Applicant should identify potential areas for trash collection and snow storage on the site plan to confirm that these will not conflict with other site elements.

5. A hay bale / silt fence detail is included on the detail sheet, but no erosion controls are shown on the site plans.

Recommendation: An erosion control limit should be shown on the site plans for review.

6. Standard details including catch basins, manholes, tree filter boxes, utility trench, etc. should be added to the site plans.

FLOOD PLAIN

7. A considerable portion of the proposed project design requires filling within the 100-year flood plain. Compensatory storage is required on a 1:1 (per foot) basis by the Mass Wetlands Protection Act (310 CMR 10.57) and on a 2:1 basis by the Arlington Wetlands Bylaw.

Recommendation: The Applicant should submit compensatory flood storage calculations on a foot per foot basis demonstrating compliance with the Local and State requirements.

8. The Applicant has identified three main areas for compensatory flood storage onsite; one along the south side of the main site building, one off the eastern end of the main site building adjacent to Burch Street and a third area within a linear water quality BMP located along the northerly and easterly property lines behind the existing houses.

The two proposed flood storage areas along the northerly/easterly property lines and east of the site building do not appear feasible as they require “balancing structures” (pipe culverts) to connect with the existing flood-plain to the south. Per 310 CMR 10.57 (4)(a), compensatory storage must have an unrestricted hydraulic connection to the flood-plain.

In addition, the linear BMP along the northerly/easterly property lines is labeled “Floodplain Compensation, Water Quality/Detention Area”. If this linear BMP receives surface runoff from the project site, there will likely be no storage volume available for compensatory flood storage.

Recommendation: The Applicant must demonstrate that the proposed compensatory storage is both feasible and in compliance with the appropriate regulations.

STORMWATER MANAGEMENT

9. The Applicant has not yet submitted any stormwater runoff calculations or analysis for review. Without the stormwater calculations, it is not possible to determine if the project as currently proposed can comply with the MassDEP Stormwater Management regulations.

10. The main site building roof is proposed for stormwater detention. No details have been provided for how the roof detention will function or where the stormwater will discharge to.
11. The 12 proposed townhome units along Dorothy Road show garages under the buildings similar to the existing homes in the Dorothy Road neighborhood. The driveway entrances to the garages are generally two to three feet below the existing street grade, and drywells are shown in the driveways presumably for drainage purposes.
Recommendation: **The Applicant should submit test pit data identifying the existing soils and seasonal high groundwater elevation in the area of the proposed drywells to confirm the drywells will function as intended.**
12. A subsurface infiltration basin is proposed along the northwest corner of the main site building. No details have been provided regarding type, size, etc. Additionally, groundwater and soils information are required to confirm the feasibility of the design.
13. The Existing Conditions survey shows an existing DMH located at the corner of Dorothy Road in front of the proposed East site entrance. A 12" RCP is shown exiting the DMH and pointing west into the project site. Has the discharge point of the westerly pipe been identified?

UTILITIES

14. The Utility Plans show the proposed sewer/water/drainage utilities schematically with no sizes, material, or elevations. Also, the symbols used for the proposed catch basins and drywells on the site plans are not included in the Legend on Sheet G 101.

Recommendation: **We recommend the Applicant coordinate with the Arlington Public Works Department regarding all proposed site utility connections to the public utilities in Dorothy Road and Burch Street to confirm that the connections are appropriate and comply with Town of Arlington construction standards. In addition, the symbols used for the proposed CBs and DWs should be added to the Legend.**

15. The Utility Plans show an existing onsite sewer line and easement located along the easterly/northerly property lines from Edith Street to Little John Street and then continuing westerly across the site. The proposed project sewer services do not connect to this onsite sewer line at any location.

Recommendation: **The Applicant should identify the owner and note the disposition of this existing sewer and easement in relation to the proposed project.**

CONSTRUCTION

16. The proposed project as currently shown appears to require import of a significant amount of fill during construction. The adjacent neighborhoods are thickly settled with narrow streets and on-street parking which may present challenges for large construction vehicles traveling to/from the project site.

Recommendation: We recommend the Applicant provide a preliminary/draft Construction Management Plan that would identify anticipated number of truck trips, potential truck routes, onsite staging and material laydown areas, hours of operation, etc.

ENVIRONMENTAL

17. The site contains several resource areas Subject to Protection under the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40 (WPA), M.G.L. Chapter 21, Section 26-53 (the Massachusetts Clean Waters Act), and the Town of Arlington Wetlands Protection Bylaw, Article 8 (the Bylaw), including Land Subject to Flooding, Isolated and Bordering Vegetated Wetlands, and Adjacent Upland Resource Areas (AURA). Forested and scrub-shrub wetlands were observed throughout the southern half of the site, some of which present physical characteristics of potential vernal pool habitat. BETA found the vegetated wetland boundaries shown on the plans flagged in the field for three Bordering Vegetated Wetlands (BVW) Series A, B, and C, and one Isolated Vegetated Wetland (IVW), Series D, under the WPA and the Bylaw. The IVW D Series is not Subject to Protection under the WPA however it is protected by the Bylaw¹. The AURA is measured 100 feet horizontally lateral from the boundary of Resources Areas and is significant to the interest of the Bylaw² and is found to provide several functions and values significant to Bylaw including wildlife habitat. Section 25 of the Bylaw defines two levels of protection within the AURA, a No Disturbance Zone measured 25-feet horizontally from the resource area and a Restricted Zone measured 75-feet horizontally from the No Disturbed Zone.

Recommendation: The Bylaw applies the AURA to all wetlands including isolated wetlands to ensure protection of the interests identified in Section 1 of the Bylaw³. A field evaluation of AURAs function and values should be conducted to determine the areas significance to the interests identified in the Bylaw. Flagging the AURA boundaries in the field would provide a clear demarcation of these protected boundaries.

18. Plan Sheet C-100, "Existing Environmental Resources" dated March 13, 2020, of the ZBA filing shows two wetland boundary lines for each wetland series, a 2000 delineation line from an Abbreviated Notice of Resource Area Delineation dated May 1, 2000 and the current delineation conducted by the BSC Group, Inc. on January 15, 2020.

¹ In accordance with Section 21, B (1) of the Town of Arlington Wetland Protection Regulations Bylaw, vegetated wetlands are freshwater wetlands, including both bordering vegetated wetlands and isolated vegetated wetlands which do not border on any permanent water body.

² The Arlington Bylaw defines AURA as the area 100 feet horizontally lateral from the boundary of any of the following Resource Areas: marsh, freshwater wetland, vernal pool, wet meadow, bog, swamp, bank, stream, creek, pond, reservoir, or lake, or resource area defined in Section 2.A(1) through (4) of the Bylaw.

³ Section 1, B of the Bylaw states "areas subject to protection under the Bylaw are to be regulated in order to ensure the protection of the following interests: public or private water supply, ground water supply, flood control, erosion control and sedimentation control, storm damage prevention, other water damage prevention, prevention of pollution, protection of surrounding land and other homes or buildings, wildlife protection, plant or wildlife habitat, aquatic species and their habitats, and the natural character or recreational values of the wetland resources (collectively, "Resource Area Values" or "Interests of the Bylaw").

Recommendation: Field data describing the methodology, soil, vegetation, and hydrology should be provided in the ZBA filing. It appears that the resource area boundaries were delineated during the non-growing season. Therefore, additional vegetative data may need to be collected by the Applicant to support their boundary delineation conducted in January 2020. Upon receipt of the supporting field data, BETA would be able to confirm existing resource area boundaries upon submission of this information.

19. The Layout, Materials, and Landscape Plan show impacts to the IVW, D Series, and associated AURA as a result of a proposed boardwalk that bisects the wetland. Isolated wetlands are significant to the interest of the Bylaw and provide equal functions and values as those of BVWs (Section 21 A). The Bylaw requires replication of wetland impacts at a 2:1 ratio and a detailed Replication Design that incorporates the MA Inland Wetland Replication Guidelines to the extent practicable and/or restoration of a degraded wetland⁴. The Bylaw provides additional protection within the AURA zones associated with all wetlands regardless of bordering or isolated (Section 25). The current Plans do not provide the extent of impacts to the IVW or required replication. Under the Bylaw, IVWs are significant to the interests identified in Section 21⁵ and are further protected by the highly regulated AURA.

Recommendation: Waiver of the Bylaw would result in a loss of resource areas (IVW and AURA) and associated wildlife habitat. The applicant should provide the ZBA with an evaluation of the functions and values provided by the IVW and AURA before considering the Waiver Request.

20. Under Section 25,C of the Bylaw the 25-foot No Disturbance Zone of the AURA is highly restrictive and should remain unchanged from its pre-project conditions. All areas within the AURA are significant to the protection of wetland characteristics and values and the Applicant will need to prove that reasonable alternatives for work within the Restrictive Zone are not available.

Recommendation: Based on Section 25, D of the Bylaw, the Applicant should provide the ZBA an alternatives analysis that confirms no alternatives to working in the Restrictive Zone are available in support of the Bylaw Waiver Request.

21. An increase in the volume of stormwater runoff from the Project could exacerbate flooding on the Site and adjacent streets. Section 23 of the Bylaw requires flood storage compensation ratio of 2:1⁶⁷.

⁴ Section 21, E, (2) (c) states “The area of the wetland replication shall be at a 2:1 ratio to that area of wetland loss.”

⁵ According to Section 21, A (1) Vegetated wetlands are likely to be significant to wildlife, to plant or wildlife habitat, to public or private water supply, to groundwater supply, to flood control, to storm damage prevention, to prevention of pollution, and to the protection of fisheries.

⁶ In accordance with Section 23, C of the Town Bylaw No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, or removing, filling, dredging or altering of, land subject to flooding shall be conducted without written permission of the Conservation Commission. And

⁷ Section 23, D states the Commission may permit activity on land subject to flooding shall provide compensatory flood storage for all flood storage volume that will be lost at each elevation...at a 2:1 ratio minimum, for each unit volume of flood storage lost at each elevation.

Recommendation: Currently the Bylaw protects against exacerbating current flooding issues as well as potential future flooding as a result of climate change that current FEMA base flood elevation may not address. The Bylaw requirement of 2:1 compensation would protect against flood damage of adjacent property and infrastructure. BETA recommends that the Applicant address BETA comments x, x, etc. (add the #'s) prior to considering the Bylaw Waiver Request.

22. BETA assumes vegetation removal will be required for construction of the Project within resources protected under the WPA and Bylaw including AURAs and buffer zones that is assumed to be significant to the interests of the Bylaw⁸. The Plan provides general site landscaping but does not include information on vegetation removal or replacement within protected areas.

Recommendation: The Applicant has not provided sufficient information to describe the site, the work or the effects of the work on the interests protected by the vegetated areas Subject to Protection under the Bylaw or state WPA. The Applicant should provide the specific criteria for removing vegetation and replacement strategies outlined in Section 24 - Vegetation, B through H, of the Bylaw that may otherwise be eliminated if the Bylaw is waived.

23. Based on the Project Plans construction is proposed within the AURA Zones. Work within the 25-foot No Disturbance Zone includes construction of a boardwalk and footpaths while large portions of buildings and facilities are proposed within the 75-foot Restricted Zone. Construction details and information describing impacts to the AURA zones have not been provided and a thorough review of the Project impacts and implications to the interest of the Bylaw and WPA cannot be completed at this time. The Bylaw allows only passive passage within the No Disturbance Zone and designates areas of suitable levels of disturbance within the Restricted Zone.

Recommendation: The Bylaw provides additional levels of protection to areas adjacent to resources that is not provided in the WPA. The Applicant has not provided sufficient information for the ZBA to make an informed decision to waive the Bylaw. BETA recommends the Applicant provide detailed construction plans, grading plans associated with buildings, parking lots, gazebo, and footpaths, erosion control plan, impact calculations of resource areas under the interest of the Bylaw and WPA, mitigation description and plans, and a narrative detailing proposed activities.

24. The southern corner of the site is located within a FEMA Floodway. The plans show portions of the proposed footpath through the Floodway and if work in the area includes clearing and/or grading consultation with FEMA will be required.
25. Review of the USFWS, Information for Planning and Consultation (IPaC), identified 18 migratory bird species and the threatened northern long-eared bat (NLEB; *Myotis septentrionalis*) that have the potential to occur within the site and surrounding area. An official USFWS site review and species list has not been generated at this time. The site is densely vegetated and provides wildlife habitat value for urban species such as common resident birds, racoons, fox, squirrels, chipmunks, skunk, opossum,

⁸In accordance with Section 24 A vegetation within resource areas is significant to the protection of wildlife, wildlife habitat, and water quality.

deer, and rabbit to name a few. Wildlife habitat is significant to the interest of the Bylaw⁹ and vegetated resource areas, including isolated wetlands, are protected by buffers of the AURA zones. Construction activities that may alter vegetated resource areas are assumed to affect wildlife habitat and breeding which is prohibited under the Bylaw¹⁰.

Recommendation: The Applicant should conduct a wildlife habitat evaluation of the vegetated 17.7-acre site by qualified professionals. A wildlife habitat evaluation and assessment of resource areas will provide a better understanding of the potential loss of habitat within isolated wetlands and AURA zones if the Bylaw is waived.

26. Based on the Application the Project appears to be in the preliminary development stage and impact details of environmental interests identified in the Bylaw and its Regulations are not defined at this time. Specific details such as calculations of impacts to resource areas, impacts within buffers of AURA, locations of temporary impacts such as staging areas, haul roads, erosion controls, and dewatering will need to be provided to adequately evaluate how the Project activities will affect areas protected under the WPA and The Arlington Wetlands Regulations.

Conclusions

At this preliminary design phase, the Applicant has not provided sufficient detail regarding the disposition of site-generated stormwater runoff to determine that the proposed project is able to satisfy MassDEP Stormwater Management Regulations. The proposed stormwater management approach appears to utilize areas of pervious pavement, rooftop detention and linear treatment BMPs to mitigate the impacts from the proposed site development. Absent the review of stormwater calculations, it is not possible to determine if the requisite peak rate/volume mitigation and water quality requirements have been provided.

The project design includes compensatory flood storage to offset proposed filling within the 100-year floodplain. The volume of compensatory storage cannot be verified because calculations have not been provided. Additionally, it appears that some of the areas proposed for compensatory storage may not be consistent with the required Local and State performance standards.

The proposed site grading plans appears to demonstrate that the proposed surface grading of the site will allow it to drain properly; however, it cannot yet be determined that the surface stormwater runoff will be effectively managed.

The proposed utility layouts for sewer, water and drainage are shown schematically and appear feasible. Gas, electric and tele/com utility layouts are not shown and their location onsite in relation to the other proposed utilities is unknown. Additional information including pipe sizes, materials, and invert elevations

⁹ In accordance with Section 30 – Wildlife Habitat - Activities which alter the Wildlife Habitat of any Resource Area in a manner that is likely to impact the breeding success of wildlife are prohibited.

¹⁰ Section 30 – Wildlife Habitat Activities which alter the Wildlife Habitat of any Resource Area in a manner that is likely to impact the breeding success of wildlife are prohibited.

would need to be provided to verify compliance with Town construction standards and confirm that no conflicts exist between the various utilities.

The site includes several resource areas significant to the interest of the Arlington Wetland Protection Bylaw, Article 8 and Regulations for Wetland Protection (Bylaw) including Land Subject to Flooding, Isolated and Bordering Vegetated Wetlands, and AURAs. These resources provide important functions and values including flood storage and wildlife habitat that will be affected by the Project as it is currently proposed. The Bylaw provides additional protection to areas of significant value beyond that of the WPA, including IVWs, important vegetated zones adjacent to resource areas, and requires additional mitigation of impacts above that of the WPA. These additional requirements of the Bylaw ensure sufficient protection and compensation of resources significant to the interest of the Bylaw.

The application does not include sufficient information describing the site and resource areas, proposed work, or the effects of the work on the interests provided by the Bylaw. An evaluation of the resource areas function and values, wildlife habitat evaluation of the AURA as well as the IVW and its function in supporting wildlife habitat should be provided to the ZBA before considering Waiving the Bylaw.

If you have questions about any of these comments, please feel free to contact me at (401) 333-2382.

Very truly yours,
BETA Group, Inc.



Todd Undzis, P.E.
Project Manager



Marta Nover
Vice President

cc: Douglas W. Heim, Arlington Town Counsel